



GPCS456

Good Practice
Case Study

Reduction of energy baseload at
Prestwick Circuits Ltd, Ayrshire


ACTIONenergy
From the Carbon Trust



The Business Case

Company profile

Prestwick Circuits Ltd operate as part of TT Electronics Plc group of companies. The company manufactures high quality printed circuit boards used within the automotive and aero industry.

Achievements

Significant cost and energy savings have been made with the introduction of simple energy management procedures, a programme of good housekeeping and investment in energy efficient technology.

Action Energy provided a free on site energy assessment which helped the company develop its energy management programmes and start making considerably cost savings. This was important because it was the second year of the site's Climate Change Levy agreement, which is the benchmark year. As a result of Action Energy's assistance, the company's CCL discount, worth nearly £28,000 per annum, was maintained for the next two years.

Prestwick Circuits implemented a number of measures to reduce 'out of hours' electrical consumption as recommended by the Action Energy consultant. These measures delivered the following business benefits:

- reducing labour and material costs for maintenance
- energy savings of over 1,752,000 kWh/annum
- cost savings of the order of £45,700/annum and CCL discount worth £28,000
- CO₂ savings of 753 tonnes/annum.



Victor Sproat, the QA Manager has been delighted with the results that have been achieved to date. "The Action Energy visit has assisted us in identifying the priorities for energy saving. A few simple management measures have afforded substantial energy savings. Identifying and eliminating unnecessary operation has reduced the amount of time our plant has to work and this means our maintenance burden is reducing also. Altogether a most successful campaign."

- Energy savings of over 1,752,000 kWh/annum
- CO₂ savings of more than 750 tonnes per annum
- Cost savings of £45,700 per annum

The Technical Case

Implementing energy efficiency

As part of the site energy assessment, the Action Energy consultant carried out a detailed analysis of the site's half-hourly data, obtained from the electricity supplier and identified a potential for a number of key energy and cost saving opportunities. In particular the consultant identified the potential reduction of the existing 500kW base load as illustrated.

Using this data, the consultant and the company adopted a simple four step procedure to improve energy efficiency. Examination of the electricity demand data can provide an immediate, detailed insight into patterns of energy use and the potential for saving.

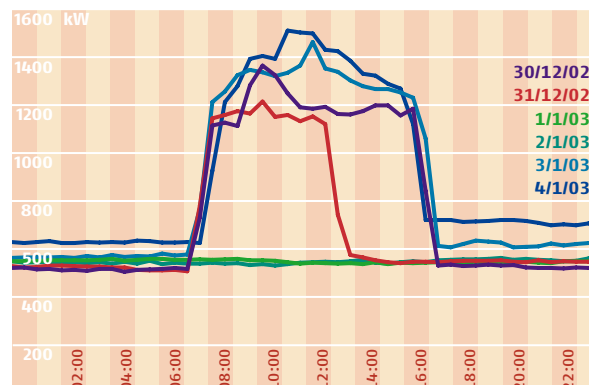
Identifying and solving the problem

Examination of the electrical demand profiles at this site showed that there was a substantial continuous electrical load. The load profiles were considered in conjunction with the known production activity and this simple analysis revealed that equipment was being operated unnecessarily overnight and at weekends.

Having ascertained that there was scope for improvement, the consultant and the staff at Prestwick Circuits set out to identify the changes that could be made. The company uses a significant amount of production and services equipment, e.g. curing ovens and air compressors, both with large electrical demands. Investigation showed that these were left idling even when production was stopped.

An 'end of shift' inspection programme was implemented to ensure that no plant had been left running unnecessarily. To make sure this happened, individual nominated members of staff were given the responsibility of checking equipment had been turned off. The project had the commitment of, and was supervised by senior management (as described in *GPG367 Better Business Guide to Energy Saving*).

Having successfully reduced energy consumption, the company is currently considering low cost measures to maintain these improvements; e.g. installing time switches to control the operation of plant such as compressors and drying ovens.



Electrical consumption profile -there was even a 500 kW load on New Year's Day!

It is estimated that this project will save approximately 1,752,000 kWh/annum, worth over £45,000. The project has also enabled the company to maintain its CCL discount. However there are other benefits: reducing the operating hours extends plant life and reduces the maintenance burden. This simple approach to energy management has saved energy and money, and is easy for the company to maintain.

Rules of thumb

- A simple review of half-hourly demand profiles can tell a lot about the way your plant is operated and what room there is for improvement. Half hourly demand data is available from the electricity supplier for any site where half-hourly metering is used.
- Unnecessary overnight and weekend electrical loads often represent several percent of total electrical consumption and result in significant but avoidable costs. This problem is not uncommon and many businesses will benefit from a similar load analysis.
- Simple, good housekeeping at larger industrial sites can typically save between 5% and 15% of energy consumption and costs, but requires sustained vigilance and effort.

The Financial Case

The company started making savings immediately. Prestwick Circuits continues to develop a comprehensive energy management programme and, once fully implemented, it is projected that the annual savings will exceed £45,000.

Savings

- Reducing electrical base load has the potential to produce direct energy cost savings of up to £45,000 per annum.
- In addition the programme has enabled the company to meet its CCL obligations and retain a CCL discount benefit of approximately £28,000 per annum.
- The programme is generating significant savings in both labour and material cost for maintenance.

Costs

- The cost of reducing the electrical base load on site was negligible. Inspection to prevent unnecessary operation is conducted during shift change over and incorporated as part of existing staff duties.
- As the programme is developed to ensure the energy savings are maintained, the installation of simple control devices, such as time switches will require a minimal capital investment.

Payback

Returns on investment were immediate; this has given the company confidence to develop its energy management systems and to invest in other short payback measures.



Action Energy assistance

Expert advice

Action Energy provides **free** expert energy efficiency advice.

Energy surveys

Your company may qualify for a **free** energy efficiency survey from one of Action Energy's qualified consultants.

Action Energy loans

Action Energy can provide an interest free loan to SMEs in England, Wales and Northern Ireland of up to £50,000, repayable over up to 5 years for investment in energy efficiency measures. In Scotland the Scottish Executive offer a similar scheme called 'Loan Action Scotland'.

Publications

A range of free publications is available including:

Energy Saving Guide for Small Business

FOCUS The Manager's Guide to Reducing Energy Bills

GPG200 A Strategic Approach to Energy and Environmental Management

GPG367 Better Business Guide to Energy Saving

For details of any of these services or free publications, contact the Environment & Energy Helpline on 0800 58 57 94 and select the Energy option, or visit the Action Energy website at www.actionenergy.org.uk. For Loan Action Scotland contact www.energy-efficiency.org/howto/help/loan/.

Tax incentives

The whole capital value of energy efficient technologies which qualify under the Enhanced Capital Allowances scheme may be written down in the year of purchase. For further information go to www.eca.gov.uk.

Sources of further information

For further information about energy management contact contact:

Energy Institute Tel: 020 7467 7100

www.energyinst.co.uk

National Energy Foundation (Energy Efficiency Accreditation Scheme) Tel: 01908 665555

www.eeas.org.uk

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